WHAT IS CLAIMED IS:

1. A projection optical system projecting light from an original image onto a projection surface, comprising:

a plurality of optical elements; and

a first optical system constituted by at least one of the plurality of optical elements and having an ability to form an image with the light onto a predetermined surface different from the projection surface;

wherein a first optical element of the plurality of optical elements is rotated substantially around a center of an exit pupil of the first optical system, such that a projection image of the original image is moved.

2. The projection optical system according to claim 1,

wherein the first optical element is rotated around a point on an optical axis of the first optical system, the point being substantially at a position of the exit pupil of the first optical system.

3. The projection optical system according to claim 1,

wherein the movement of the projection image is at least one of a parallel movement and a movement in a tilting direction.

4. The projection optical system according to claim 1,

wherein the first optical system has an ability to image the light from the original image onto a spherical surface whose

curvature center is a point on an optical axis of the first optical system, the center point being substantially at a position of the exit pupil of the first optical system.

5. The projection optical system according to claim 1, wherein the exit pupil of the first optical system is formed at a position closer to the projection surface than an optical element, which is closest to the projection surface, of the first optical system.

6. The projection optical system according to claim 1, further comprising a second optical system arranged at a position closer to the projection surface than the first optical system;

wherein the second optical system comprises a curved reflective surface.

7. The projection optical system according to claim 6, wherein the second optical system comprises a curved and rotationally asymmetric reflective surface.

8. The projection optical system according to claim 6, wherein the second optical system forms an intermediate image of the original image at a position which is different from the projection surface.

9. The projection optical system according to claim 8,

wherein the intermediate image is formed at a position closer to the original image than the reflective surface, which is closest to the projection surface, of the second optical system.

10. The projection optical system according to claim 8,

wherein the second optical system comprises a plurality of curved reflective surfaces; and

wherein the intermediate image is formed between a first reflective surface which is closest to the projection surface side, and a second reflective surface which is the second one counting from the projection surface side, of the curved reflective surfaces.

11. The projection optical system according to claim 6,

wherein the second optical system comprises four curved reflective surfaces.

12. The projection optical system according to claim 6,

wherein the reflective surface, which is closest to the projection surface, of the second optical system is a concave surface.

13. The projection optical system according to claim 6,

wherein all reflective surfaces of the second optical system are curved and rotationally asymmetric surfaces.

14. The projection optical system according to claim 6, wherein the second optical system is rotated around a point on an optical axis of the first optical system, the point being substantially at a position of the exit pupil of the first optical system.

15. The projection optical system according to claim 6, further comprising a third optical system arranged between the first optical system and the second optical system, the third optical system comprising a rotatable optical element which is rotatable around a point on an optical axis of the first optical system, the point being substantially at a position of the exit pupil of the first optical system.

16. The projection optical system according to claim 15, wherein the rotatable optical element is rotatable in a plurality of rotational directions around the point.

17. The projection optical system according to claim 15, wherein the rotatable optical element is a reflective member.

18. The projection optical system according to claim 15, wherein the third optical system comprises two rotatable optical elements, the two rotatable optical elements being rotatable in different directions.

19. The projection optical system according to claim 15, wherein the third optical system comprises a polarization splitting surface.

20. The projection optical system according to claim 15, wherein the third optical system comprises a 1/4-wave plate.

21. The projection optical system according to claim 15, wherein the rotatable optical element is a rotatable mirror.

22. The projection optical system according to claim 1, wherein the projection optical system projects the light from the original image obliquely onto the projection surface.

23. The projection optical system according to claim 1, wherein a center line of light reaching a center of the projection image from a center of the original image is tilted with respect to the projection surface.

24. The projection optical system according to claim 1, wherein the first optical system comprises a coaxial and rotationally symmetric lens.

25. The projection optical system according to claim 1, wherein the first optical system consists of coaxial and

rotationally symmetric lenses.

26. The projection optical system according to claim 1, wherein the first optical system includes a curved reflective surface.

27. The projection optical system according to claim 1, wherein the projection surface is a substantially planar surface.

28. The projection optical system according to claim 6, further comprising an optical deflection element arranged between the first optical system and the second optical system, the optical deflection element deflecting a light ray traveling on the optical axis of the first optical system.

29. The projection optical system according to claim 1, wherein the projection optical system projects light from a plurality of original images onto the projection surface; and wherein the projection optical system further comprises a color combining optical system which combines the light from the plurality of original images, the color combining optical system being arranged at a position closer to the original image than the first optical system.

30. An image projection apparatus comprising:

an image forming element forming an original image; and

the projection optical system according to claim 1.

31. The image projection apparatus according to claim 30, wherein the image forming element is one of a reflective liquid crystal display element, a transmissive liquid crystal display element, and a mirror device.

32. An image display system comprising:

the image projection system according to claim 30; and

an image information supply apparatus supplying image information for forming the original image with the image forming element to the image projection apparatus.